ABSTRACT OF THE DISCLOSURE

A method of broad screen detection, competitive dye desorption from a solid adsorbent, is described for quantifying the presence of a molecule or target analyte in the vapor phase, in solution, or eluted from a solid. In the function of an analytical element for implementing the competitive dye desorption method of the invention, dye or dye-precursor molecules adsorbed on the surface of an adsorbent are caused to desorb through the adsorption of the target analyte on the adsorbent. The desorbed dye or precursor is made detectable through sequestering of a radiation detectable species in the device of the invention. Such detection may occur, e.g., through absorption or emission of radiation in regions of the spectrum extending from the ultra-violet through the visible and into the infra-red regions. In one aspect of the invention, these processes occur within a multi-layer analytical element, in which the functions of the device may be executed by different layers.

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